



**KANSAS**

**STATE**

**HISTORICAL**

**SOCIETY**



**Cultural Resources**

Extension 240



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**KANSAS HISTORY CENTER**

Administration  
Center for Historical Research  
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Historic Sites  
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**HISTORIC SITES**

John Brown Museum  
Constitution Hall  
Cottonwood Ranch  
First Territorial Capitol  
Fort Hays  
Goodnow House  
Grinter Place  
Hollenberg Station  
Kaw Mission  
Marais des Cygnes Massacre  
Mine Creek Battlefield  
Native American Heritage Museum  
Pawnee Indian Village  
Pawnee Rock  
Shawnee Indian Mission  
William Allen White House

**CERTIFICATION OF STATE REGISTER LISTING**

The Register of Historic Kansas Places includes all Kansas properties nominated to the National Register as well as lower threshold properties which are listed on the state register only.

Property Name: Frye Bridge

Address: On Landon Road, 1.5 Miles North of the Intersection With Highway 24, 1.0 Mile East and 1.5 Miles North of Kiro

Legal: SE ¼ of Section 6 and SW ¼ of Section 5, T11S, R15E

County: Shawnee

Owner: Shawnee County

Address: 200 SE 7<sup>th</sup> Street, Topeka, KS 66603

National Register eligible  X

State Register eligible

This property was approved by the Kansas Historic Sites Board of Review for the Register of Historic Kansas Places on February 22, 2003.

I hereby certify that this property is listed on the Register of Historic Kansas Places.

*Richard D. Pankratz* 2-26-03  
State Historic Preservation Officer Date

9/95

United States Department of the Interior  
National Park Service

## National Register of Historic Places Registration Form

### 1. Name of Property

Historic name: Frye Bridge

Other name/site number: Soldier Creek Baltimore Truss Bridge; 89-HT-07

### 2. Location On Landon Road, 1.5 miles north of the intersection with Highway 24; 1.0 mile east and 1.5 miles North of the village of Kiro.

city or town Kiro not for publication  
X vicinity  
state code KS county Shawnee county code 177 zip code 66539

### 3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1986, as amended, I hereby certify that this nomination request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property meets does not meet the National Register criteria. I recommend that this property be considered significant not nationally not statewide not locally. (not See continuation sheet for additional comments.)

Signature of certifying official

Date

State or Federal agency and bureau

In my opinion, the property meets does not meet the National Register criteria.  
(not See continuation sheet for additional comments.)

Signature of commenting or other official

Date

State or Federal agency and bureau

### 4. National Park Service Certification

I, hereby, certify that this property is:

not entered in the National Register.

not See continuation sheet

not determined eligible for the National Register.

not See continuation sheet

not determined not eligible for the National Register.

not removed from the National Register.

not other, (explain:)

Signature of Keeper

Date of Action

Property Name Frye BridgeCounty and State Shawnee, KansasPage 2**5. Classification**

Ownership of Property	Category of Property	No. of Resources within Property	
<input type="checkbox"/> private	<input type="checkbox"/> building(s)	contributing	noncontributing
<input checked="" type="checkbox"/> public-local	<input type="checkbox"/> district	<input type="checkbox"/>	<input type="checkbox"/> buildings
<input type="checkbox"/> public-State	<input type="checkbox"/> site	<input type="checkbox"/>	<input type="checkbox"/> sites
<input type="checkbox"/> public-Federal	<input checked="" type="checkbox"/> structure	<u>1</u>	<input type="checkbox"/> structures
	<input type="checkbox"/> object	<input type="checkbox"/>	<input type="checkbox"/> objects
		<u>1</u>	<u>0</u> Total

Name of related multiple property listing:  
(Enter "N/A" if property is not part of a  
multiple property listing.):Metal Truss Bridges in KansasNo. of contributing resources previously  
listed in the National Register0**6. Functions or Use**Historic Functions  
(Enter categories from instructions.)TRANSPORTATION: Road-related (vehicular)Current Functions  
(Enter categories from instructions.)TRANSPORTATION: Road-related (vehicular)**7. Description**Architectural Classification  
(Enter categories from instructions.)OTHER: Baltimore TrussMaterials  
(Enter categories from instructions.)Foundation ConcreteWalls Roof Other Metal: SteelNarrative Description (Describe the historic and current condition of the property on one or more  
continuation sheets.)

Property Name Frye BridgeCounty and State Shawnee, KansasPage 3**8. Statement of Significance**

Applicable National Register Criteria (Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- ☐ A Property is associated with events that have made a significant contribution to the broad patterns of our history.
- ☐ B Property is associated with the lives of persons significant in our past.
- ☒ C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- ☐ D Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations (Mark "x" in all the boxes that apply.)

- ☐ A owned by a religious institution or used for religious purposes.
- ☐ B removed from its original location.
- ☐ C a birthplace or a grave.
- ☐ D a cemetery.
- ☐ E a reconstructed building, object, or structure.
- ☐ F a commemorative property.
- ☐ G less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance  
Enter categories from instructions.)

Period of Significance

Significant Dates

ENGINEERINGc.1920c.1920TRANSPORTATION

Cultural Affiliation

N/A

Significant Person

N/A

Architect/Builder

unknown

Narrative Description (Describe the historic and current condition of the property on one or more continuation sheets.)

Property Name Frye BridgeCounty and State Shawnee, KansasPage 4**9. Major Bibliographical References**

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS):

☐ preliminary determination of individual listing  
(36 CFR 67) has been requested

☐ previously listed in the National Register

☐ previously determined eligible by the National Register

☐ designated a National Historic Landmark

☐ recorded by Historic American Buildings  
Survey # \_\_\_\_\_

☐ recorded by Historic American Engineering

Primary location of additional data:

☒ State Historic Preservation Office

☐ Other State agency

☐ Federal agency

☒ Local government

☐ University

☐ Other

Specify repository:

Record # \_\_\_\_\_

**10. Geographical Data**Acreage of property <1 acre

UTM References

1	<u>1/5</u>	<u>2/5/9/5/7/0</u>	<u>4/3/3/3/2/7/0/</u>	3	<u>/</u>	<u>/ / / / /</u>	<u>/ / / / /</u>
	Zone	Easting	Northing		Zone	Easting	Northing
2	<u>/</u>	<u>/ / / / /</u>	<u>/ / / / /</u>	4	<u>/</u>	<u>/ / / / /</u>	<u>/ / / / /</u>

\_\_\_\_ See continuation sheet

Verbal Boundary Description (Describe the boundaries of the property on a continuation sheet.)

Boundary Justification (Explain why the boundaries were selected on a continuation sheet.)

**11. Form Prepared By**name/title Kerry Davis, Architectural Historian & Elizabeth Rosin, Partnerorganization Historic Preservation Services date August 5, 2002street & number 323 West Eighth Street telephone (816) 221-5133city or town Kansas City state Missouri zip code 64105**Additional Documentation**

Submit the following items with the completed form:

Continuation Sheets

Maps

A USGS map (7.5 or 15 minute series) indicating the property's location.

A sketch map for historic districts and properties having large acreage or numerous resources.

Photographs

Representative black-and-white photographs of the property.

Additional items (Check with the SHPO or FPO for any additional items.)

**Property Owners** (Complete this item at the request of the SHPO or FPO.)Name County of Shawneestreet & number 200 SE 7<sup>th</sup> Streettelephone 785-233-7702city or town Topekastate KS zip code 66603

United States Department of the Interior  
National Park Service

**NATIONAL REGISTER OF HISTORIC PLACES  
CONTINUATION SHEET**

Section Number 7 Page 1

Frye Bridge  
Shawnee County, Kansas

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**DESCRIPTION**

**LOCATION AND SETTING**

The Frye Bridge is located 1.5 miles north and 1.0 mile east of the village of Kiro in northeast Kansas, on the north-south section line between the SE ¼ of Section 6 and the SW ¼ of Section 5, Township 11S, Range 15E. The region is defined by rounded hills and broad, tree-lined valleys. The Frye Bridge carries Landon Road across Soldier Creek, a wide, swift branch of the Kansas River. The gravel road, flanked by cultivated fields, aligns directly with the Frye Bridge.

**TRUSS TYPE**

The Frye Bridge is a single span riveted Baltimore through truss<sup>1</sup> that measures 134 feet in length and 16 feet in width.<sup>2</sup> Standard, box-form, concrete abutments support the truss bearings that rest directly on the abutment seats. The abutment side walls extend approximately 12 feet along the approach grades.

The inclined end posts rise from the bottom chords and meet the horizontal top chords to form a trapezoidal shape. The top chords and end posts consist of two channels, a cover plate, and lacing bars; the bottom chords consist of two channels with lacing bars.

The web members include vertical posts that form six equivalent panels and diagonal ties that intersect within the two central panels. The vertical posts are composed of channel stock, lacing bars, and stay plates; the diagonal ties are composed of angle stock with lacing bars and stay plates. Sub-ties intersect the diagonal members in each panel, the distinguishing feature of a Baltimore truss. The sub-ties are composed of angle stock, lacing bars, and/or stay plates,

A system of intersecting, riveted angle stock forms the portal and sway bracing that connects the top chords at each vertical post, leaving a vertical clearance of 15½ feet. Upper lateral bracing angle bars intersect diagonally between the top chords.

The concrete deck is 16 feet wide between the curbs and rises 37 feet above the creek bed. Floor beams are located at the base of each vertical truss member. Poured concrete encapsulates the stringers and floor beams to form a monolithic concrete deck and understructure.

The historic lattice guardrails are intact along the length of the bridge. Letters in relief read "LACKAWANNA" on several structural components.

**INTEGRITY**

The Frye Bridge is an excellent example of the Baltimore truss bridge type, which is increasingly rare in Kansas.<sup>3</sup> With no apparent alterations to the historic design or materials, the Frye Bridge retains a high degree of integrity.

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<sup>1</sup> A through truss is also referred to as a high truss.

<sup>2</sup> The length equals the distance between the abutments; the width equals the deck width.

<sup>3</sup> Dale Nimz, *Activity III Review Initial Assessment Metal Truss Bridges*. (Topeka: Kansas State Historical Society, 1998), 6. Nimz stated there were approximately five extant Baltimore trusses in Kansas.

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Section Number 7 Page 2

Frye Bridge  
Shawnee County, Kansas

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The original workmanship, materials, design, setting, and feeling of the property are readily apparent. Furthermore, the potential for preservation of the bridge is high. Located on a secondary road, it is unlikely that traffic requirements will necessitate alteration or replacement.

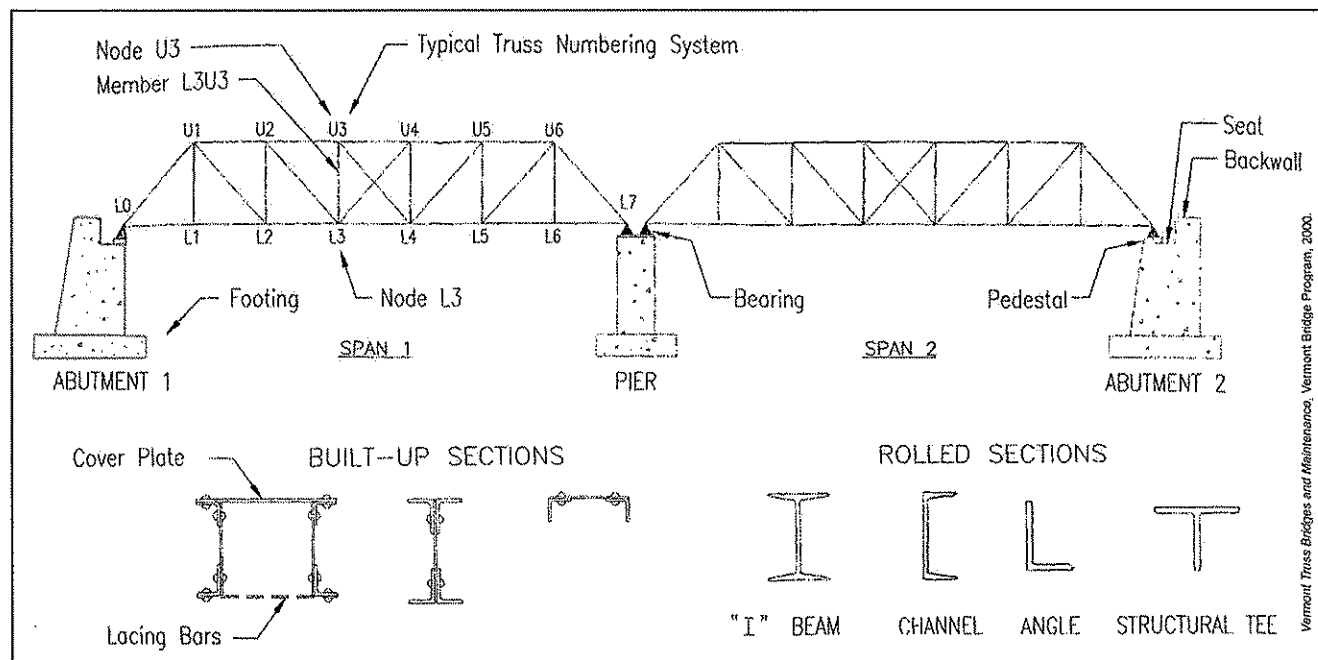
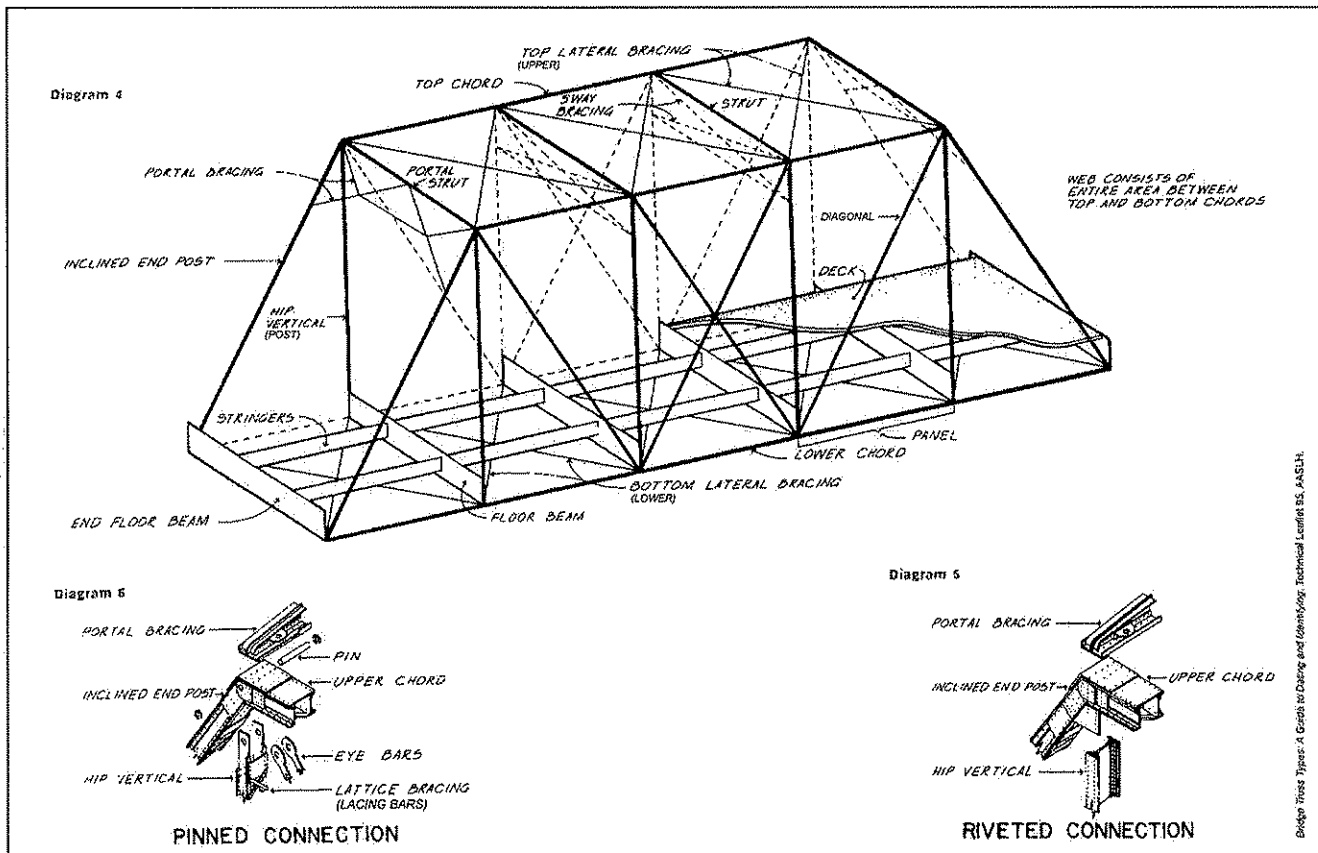
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**NATIONAL REGISTER OF HISTORIC PLACES  
CONTINUATION SHEET**

Section Number 7 Page 3

Frye Bridge  
Shawnee County, Kansas

**TRUSS TERMINOLOGY**



United States Department of the Interior  
National Park Service

**NATIONAL REGISTER OF HISTORIC PLACES  
CONTINUATION SHEET**

Section Number 8 Page 4

Frye Bridge  
Shawnee County, Kansas

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**STATEMENT OF SIGNIFICANCE**

The Frye Bridge is significant under National Register Criterion C in the areas of Engineering and Transportation. As defined by the *Multiple Property Documentation Form for Metal Truss Bridges in Kansas*, it is an excellent example of the Baltimore truss bridge type. Built c.1920,<sup>1</sup> the Frye Bridge represents a rare bridge solution applied to a long span. Its riveted structure and concrete deck, abutments, and encapsulated understructure illustrate the standardization of these construction techniques and materials during the period of significance.

**ELABORATION**

The need for all-weather crossings of rivers and streams corresponded to the growth of the market economy across Kansas during the late nineteenth and early twentieth centuries. Bridges provided farmers easy access to markets and could make the difference between growth and stagnation for the many small, young communities across the state.<sup>2</sup> Proximity to a bridge often secured a town's economic stability, and it contributed to a local sense of modernity.

Prior to the 1930s, the railroad was the primary means of long-distance travel and there was little need for roads to extend more than a few dozen miles. With little stimulus for improving roads that would cross multiple jurisdictions, road construction and maintenance remained local concerns. County commissioners often carried the burden of selecting bridge locations, over which much contention was common.

The range of choices for bridge designs and companies was vast. Many of the larger bridge companies sold metal truss bridges through mail order catalogues. County commissioners could simply specify the span, clearance needs, and truss type (if there was a preference), then choose the lowest bidder from the numerous competing companies that had salesmen in the field.

By the late nineteenth century, fabrication of iron and steel was widespread. The speed of construction and the relatively low cost of metal truss bridge parts ensured their popularity over labor-intensive masonry bridges and short-lived timber bridges. Toward the end of the nineteenth century, the quality, quantity, and cost of steel improved to such a degree that it virtually replaced wrought iron for bridge construction by 1910.<sup>3</sup>

Most metal trusses were constructed of built-up members composed of mass-produced, standard-shaped channel, plate, and angle stock purchased from one or more of the numerous steel companies nationwide. The bridge companies preassembled trusses in their factories then simply shipped them to the bridge site for installation. Installation involved grading approaches, constructing abutments and piers, erecting preassembled floor and truss members, and placing deck material.

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<sup>1</sup> Construction date compiled from several sources: As reported in the *Topeka Journal* (7 June 1916) the Shawnee County Commissioners planned to advertise for bids on the construction of the Frye Bridge in 1916. Shawnee County Road and Bridge records indicate 1924 as the construction date. Kansas Department of Transportation records indicate 1925 as the construction date.

<sup>2</sup> Larry Jochims, *Metal Truss Bridges in Kansas 1861-1939, National Register of Historic Places Multiple Property Documentation Form*, (Topeka: Kansas State Historical Society, 1989), E.

<sup>3</sup> *Ibid*, F.

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**NATIONAL REGISTER OF HISTORIC PLACES  
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Frye Bridge  
Shawnee County, Kansas

Before 1900, generally all panel point connections – the locations at which structural bridge elements intersect – were made with the use of a pin. This technique was so widespread that it became one of the distinctive features of American bridge construction in the nineteenth century.<sup>4</sup> However, subsequent advancements in pneumatic riveting techniques greatly improved rivet installation quality, enabling more reliable panel point connections. With the increased portability of this construction technology, the more rigid riveting technique rapidly surpassed pin-connected bridge construction during the first years of the twentieth century. The riveted construction of the Frye Bridge is typical of bridges built during this period.

In addition, the contemporary development of economic cement production promoted the widespread combination of steel and concrete in bridge construction. It was not uncommon for older metal truss bridges to receive new reinforced concrete decks or poured concrete reinforcements for older stone abutments. By the 1920s, reinforced concrete was the standard material for abutments, piers, and decks of steel truss bridges. The poured concrete abutments, deck, and encapsulated understructure of the Frye Bridge illustrate the standardization of this construction material.

The Frye Bridge is a classic example of the Baltimore truss design, a variation of the Pratt truss. Patented in 1844, the Pratt truss incorporates vertical members in compression and diagonal members in tension, a design that reduces the required length of compression members, helping to prevent bending or buckling.<sup>5</sup> The Pratt truss became the most common bridge type of the late nineteenth and early twentieth centuries and spawned numerous variations including Parker, Camelback, Baltimore, Truss Leg Bedstead, Lenticular, and Pennsylvania trusses.<sup>6</sup>

As railroad technology developed in the late nineteenth century, the size and weight of locomotives and their loads increased. This trend drove bridge engineers to develop trusses able to carry these increased loads. Patented in 1871, the Baltimore truss is a direct result of this development. The Baltimore truss incorporates sub-struts and/or sub-ties into a standard Pratt truss in order to provide greater rigidity and permit the construction of longer spans.<sup>7</sup> It was used extensively by the Baltimore & Ohio Railroad Company, from which the design derives its name.

In Kansas, Baltimore truss bridges were constructed into the early twentieth century, but they were never widespread. In 1998, approximately three Baltimore truss bridges, including the Frye Bridge, existed throughout the state of Kansas.<sup>8</sup>

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<sup>4</sup> Ibid, F.

<sup>5</sup> T. Allan Comp and Donald Jackson, *Bridge Truss Types: A guide to dating and identifying*. (Nashville, Tennessee: American Association for State and Local History, Technical Leaflet 95), 8.

<sup>6</sup> Ibid.

<sup>7</sup> Ibid.

<sup>8</sup> Nimz, 14. Nimz identified one Baltimore truss bridge in Kansas that appeared to be National Register eligible. In addition, *Kansas Historic Bridge Rating System*, Kansas Department of Transportation, 1980-1983. KDOT survey form indicates only four to six extant Baltimore truss bridges.

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**NATIONAL REGISTER OF HISTORIC PLACES  
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Frye Bridge  
Shawnee County, Kansas

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**STRUCTURE HISTORY**

Established c.1890 as a station stop to serve the main line of the Union Pacific railroad, the nearby village of Kiro featured a depot and a grain elevator by 1896. Early in the twentieth century, it was known as a thriving rural village, shipping an equal or greater number of cars of corn, potatoes, and turnips than the five stations in the vicinity.<sup>9</sup> A successful general store opened in 1911. Kiro was typical of small towns throughout Kansas that served as a trading and shipping point for the surrounding rural community. As a result, fords and bridges that provided area farmers with access to local markets were critical to the survival of the regional economy.

In response to bridge losses totaling \$27,000 during the years 1913 and 1914, the board of Shawnee County Commissioners essentially banned "tin bridges" in 1916. Upon the suggestion of the Kansas State Highway Engineer, they voted to erect only concrete bridges in the future. That same year, the Shawnee County Commissioners prepared to advertise for bids for the construction of new five county bridges, including the Frye Bridge. As reported by the *Topeka Journal*, the need for a bridge in this location arose "a force of men working for the North Topeka Drainage board chopped down a tree and allowed it to fall on the structure," effectively destroying the previous bridge.<sup>10</sup>

Although the *Topeka Journal* report suggests the Frye Bridge was constructed c.1917, the Shawnee County Road and Bridge records indicate that the Frye Bridge was constructed in 1924 and the Kansas Department of Transportation records indicate a construction date of 1925. No further construction history has been located at this time.<sup>11</sup> While the builder of this bridge is unknown, markings on the structural members indicate that Lackawanna Steel Company of Buffalo, New York produced the stock metal.

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<sup>9</sup> Blaine Crow, *A Community Survey of Silver Lake Rural High School District*, Silver Lake, Kansas: Mirror Print, 1925, 14.

<sup>10</sup> "To Build 5 Bridges," *Topeka Journal*, 7 June 1916.

<sup>11</sup> Inquiry into the Shawnee County Road and Bridge records, Kansas Department of Transportation records, Kansas State Historical Society archives, Shawnee County Historical Society archives, and *Western Contractor* revealed no further construction history specific to the Frye Bridge.

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**NATIONAL REGISTER OF HISTORIC PLACES  
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Frye Bridge  
Shawnee County, Kansas

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**BIBLIOGRAPHY**

Comp, T. Allan and Donald Jackson. *Bridge Truss Types: A guide to dating and identifying*. Nashville, Tennessee: American Association for State and Local History, Technical Leaflet 95.

Crow, Blaine. *A Community Survey of Silver Lake Rural High School District*. Silver Lake, Kansas: Mirror Print, 1925.

Cutler, William G. *History of the State of Kansas*. Chicago: A. T. Andreas, 1883.

*Delaware Historic Bridges, Survey and Evaluation*. Historic Architecture and Engineering Series, No. 89. Dover: Delaware Department of Transportation, Division of Highways, 1991.

*Historic Bridge Inventory*. Kansas Department of Transportation, 9 February 1981.

*Historic Highway Bridges in Pennsylvania*. Harrisburg: Pennsylvania Department of Transportation and Pennsylvania Historical and Museum Commission, 1986.

"Industrial Images from the Library of Congress," *Illustrated Pittsburgh Retrospective* [article on-line]; available from <http://www.andrew.cmu.edu/user/vck/pghretro.htm>; Internet; accessed 18 March 2002.

Jochims, Larry. *Metal Truss Bridges in Kansas 1861-1939, National Register of Historic Places Multiple Property Documentation Form*. Topeka: Kansas State Historical Society, 1989.

Jochims, Larry. *Riley Creek Bridge, National Register of Historic Places Registration Form*. Topeka: Kansas State Historical Society, 1989.

*Kansas Historic Bridge Rating System*. Kansas Department of Transportation, 1980-1983.

Nimz, Dale E. *Activity III Review Initial Assessment Metal Truss Bridges*. Topeka: Kansas State Historical Society, 1998.

*The Second Ohio Historic Bridge Inventory: Evaluation and Preservation Plan*. Columbus: Ohio Department of Transportation, 1990.

"To Build 5 Bridges." *Topeka Journal*, 7 June 1916.

*Vermont Truss Bridges and Maintenance*. Vermont Bridge Program, 2000.

Whittemore, Margaret. "Historic Bridges of Kansas." *The Kansas Teacher*, March 1929.

*WPA Guide to 1930s Kansas*. Lawrence: University of Kansas Press, 1984.

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**NATIONAL REGISTER OF HISTORIC PLACES  
CONTINUATION SHEET**

Section Number 10 Page 8

Frye Bridge  
Shawnee County, Kansas

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**GEOGRAPHICAL DATA**

**Verbal Boundary Description:**

Located on the north-south section line between the SE  $\frac{1}{4}$  of Section 6 and the SW  $\frac{1}{4}$  of Section 5, Township 11S, Range 15E, the Frye Bridge encompasses an area measuring approximately 134 feet by 16 feet. The northwest corner of this area corresponds to the northwest corner of the bridge.

**Boundary Justification:**

The boundary includes the truss, deck, abutments, and associated approaches that represent the significant features associated with the bridge structure.

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**NATIONAL REGISTER OF HISTORIC PLACES  
CONTINUATION SHEET**

Section - Photographic Documentation Page 9

Frye Bridge  
Shawnee County, Kansas

**PHOTO LOG**

Photographer: Kerry Davis  
Date of Photographs: February 2002  
Location of Original Negative: Kansas State Historical Society, Topeka, Kansas

Photograph Number	Camera View
1.	View SE, bridge truss and abutments
2.	View E, bridge truss and abutments
3.	View NW, along roadway, bridge truss
4.	View NE, detail, posts, ties, sub-ties, guardrail
5.	View N, detail, portal and sway bracing, posts, ties, sub-ties
6.	View E, detail, abutment, bearing, lower end node
7.	View N, truss and deck understructure

